Delete the paragraph at page 61, lines 16-24 and insert therein the following:

-- Peptide T, which is derived from the V2 region of HIV-1, inhibits replication of R5 and dual-tropic (R5/X4) HIV-1 strains in monocyte-derived macrophages (MDMs), microglia, and primary CD4(+)T cells. Picone, D. et al., "Peptide T revisited: conformational mimicry of epitopes of anti-HIV proteins", *J Pept Sci* 7:197-207 (2001). Peptide T (ASTTTNYT SEQ ID NO.:230) corresponds to residues 185-192 of gp120, the coat protein of HIV and is endowed with several biological properties *in vitro*, notably inhibition of the binding of both isolated gp120 and HIV-1 to the CD4 receptor, and chemotactic activity. The effect on the humoral response to peptide T of conjugation to HA was examined. --

REMARKS

The paper copy of the Sequence Listing for the above-identified application is added, by this Preliminary Amendment, after the last page of the specification. The specification has been amended to include the identification of the SEQ ID NOS.

Applicants respectfully submit that this application is in condition for allowance and request favorable consideration.

Respectfully submitted,

PIPER RUDNICK LLP

10/7/02
Date

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MARKED-UP COPY OF PARAGRAPHS, AS AMENDED

Delete the paragraph at page 30, lines 4-17 and insert therein the following:

-- Figure 2 shows results of Enzyme-Linked Immunostaining Spot ("ELISpot") assays indicating that p7g-specific $CD8^+$ cells obtained from mice vaccinated with a p7g-HA conjugate did not express IFN-γ in the absence of p24 peptide stimulation, whereas when cells from the same animals were cultured in the presence of p24 peptide, IFN-γ secreting p7g-specific $CD8^+$ cells were detected and ranged from 500 to 3200 SFU per million cells (Figure 2A). This result represents a 10-50 times greater antigen specific CTL response than observed with free peptide (Figure 2B). Mice were immunized as outlined in Example 1 via different routes and were challenged intraperitoneally (i.p.) with a recombinant vaccinia virus vector encoding HIV- I Gag (10^7 PFU per mouse) at 30 days after the peptide vaccination. Splenocytes were harvested 5 days after the recombinant vaccinia virus challenge and cultured *in vitro* with or without p7g peptide (aa AMQMLKETI SEQ ID NO.:1) for 24 h. The spot numbers are the means of the triplicates. Error bars indicate the standard deviations from triplicated cultures. --

Delete the paragraph at page 43, line 10 to page 44, line 7 and insert therein the following:

-- Publications and large public databases are available for selecting a desired epitope. In addition, conserved motifs for Class I and II epitopes are known, permitting the

identification of novel epitopes within known protein sequences. Algorithms are available to the public for screening peptide sequences and peptide databases to identify Class I and II epitopes in any known sequence. (Rammensee, Bachmann, Stevanovic, MHC Ligands and Peptide Motifs, Landes Bioscience, Georgetown, TX (1997); Rammensee, Friede, Stevanovic: MHC ligands and peptide motifs: 1st listing, *Immunogenetics 41*, 178-228 (1995); Rammensee , "Cellular peptide composition governed by major histocompatibility complex class I molecules", *Nature 348*:248-251 (1990); H.G. Rammensee, J. Bachmann, N.N. Emmerich, O.A. Bachor, S. Stevanovic: SYFPEITHI SEQ ID NO.: 231: database for MHC ligands and peptide motifs. *Immunogenetics 50*: 213-219 (1999; access via : http://www.uni-tuebingen.de/uni/kxi/); Thakallapally et al., "Motifscan": A Web-based Tool to Find HLA Anchor Residues in Proteins or Peptides (http://hiv-web.lan1.gov/immunology/); Schreuder et al., The HLA dictionary 1999: Tissue Antigens 54:409-37(1999); Hiderhiro, A compilation of anchor residue motifs available at the Graduate School of Genetic Resources Technology, Kyushu University (http://www.grt.kyushu-u.ac.jp/~hidehiro/public_old/motifs.html). In addition, a prediction algorithm for proteosomal cleavages can be used to identify cleavage sites that predict intracellular epitope formation via the proteosomal pathway for presentation of class I MHC ligand (*see, e.g.,* NetChop at http://www.cbs.dtu.dk/services/NetChop/, or ProPrac at http://paproc.de/). --

Delete the contiguous paragraphs at page 45, line 13 to page 49, line 12 and insert therein the following:

HIV Helper-T Cell Epitopes:

-- p17(21-35) - LRPGGKKKYKLKHIV SEQ ID NO.:2; p17(22-29) - RPGGKKYX SEQ ID NO.:3; p17(93-107) - EIKDTKEALDKIEEE SEQ ID NO.:4 ; p17(118-132) -

AAADTGHSSQVSQNY SEQ ID NO.:5; p24(1-15) - PIVQNIQGQMVHQAI SEQ ID NO.:6; p24(11-30) - VHQAISPRTLNAWVKVVEEK SEQ ID NO.:7; p24(31-46) - AFSPEVIPMFSALSEC SEQ ID NO.:8; p24(51-82) - DLNTMLNTVGGHQAAMQ SEQ ID NO.:9- MLKETINEEAAEWDR SEQ ID NO.:10; p24(96-103) - MREPRGSD SEQ ID NO.:11; p24(111-132) - LQEQIGWMTNNPPIPVGEIYKR SEQ ID NO.:12; p24(131-145) - KRWIILGLNKIVRMY SEQ ID NO.:13; p24(156-174) - QPKEPFRDYVDRFYKTLRA SEQ ID NO.:14; p2p7p1p6(55-69) - EGHQMKDCTERQAN SEQ ID NO.:15; p2p7p1p6(76-83) - PSYKGRPG SEQ ID NO.:16; p2p7p1p6(98-112) - ESFRSGVETTTPPQK SEQ ID NO.:17; RT(38-52) - CTEMEKEGKISKIGP SEQ ID NO.:18; RT(88-102) - WEVQLGIPHPAGLKK SEQ ID NO.:19; RT(251-261) - SSTVNDIQKLV SEQ ID NO.:20; RT(285-299) - GTKALTEVIPLTEEA SEQ ID NO.:21; RT(553-560) - SAGIRKVLFLD SEQ ID NO.:22; Integrase(215-227) - KQITKIQNFRVYY SEQ ID NO.:23; Vif(65-76) - VITTYWGLHTGE SEQ ID NO.:24; Vif(81-96) - LGQGVSIEWRKQRYST SEQ ID NO.:25; Vpr(66-80) - QLLFIHFRIGCRHSR SEQ ID NO.:26; Tat(16-35) - SQPKTACTTCYCKKCCFHCQ SEQ ID NO.:27; Tat(46-65) - SYGRKKRRQRRRPPQGSQTH SEQ ID NO.:28; Tat(67-86); VSLSKQPTSQPRGDPTGPKE SEQ ID NO.:29; Rev(16-35) - RLIKFLYQSNPPPNPEGTR SEQ ID NO.:30; Rev(25-39) - SNPPPNPEGTRQARR SEQ ID NO.:31; Rev(76-95) - PPLERLTLDCNEDCGTSGTQ SEQ ID NO.:32; gp160(38-48) - VYYGVPVWKEA SEQ ID NO.:33; gp160(74-85) - CVPTNPVPQEVV SEQ ID NO.:34; gp160(102-116) - EQMHEDIISLWDQSL SEQ ID NO.:35; gp160(105-117) - HEDIISLWDQSLK SEQ ID NO.:36; gp160(112-141) - WDQSLKPCVKLTPLCVS SEQ ID NO.:37- LKCTDLGNATNTN SEQ ID NO.:38; gp160(155-169) - KNCSFNISTSIRGKV SEQ ID NO.:39; gp160(220-234) - PAGFAILKCNNKTFN SEQ ID NO.:40; gp160(223-231)

- FAILKCNNK SEQ ID NO.:41; gp160(235-247) - GTGPCTNVSTVQC SEQ ID NO.:42; gp160(280-296) - NAKTIIVQLNESVAIC SEQ ID NO.:43; gp160(308-322) - RIQRGPGRAFVTIGK SEQ ID NO.:44; gp160(309-325) - IQRGPGRAFVTIGKIGN SEQ ID NO.:45; gp160(321-336) - RIIGDIRKAHCNISRY SEQ ID NO.:46; Nef(31-50) - GAASRDLEKHGAITSSNTAA SEQ ID NO.:47; Nef(61-80) - QEEEEVGFPVTPQVPLRPMT SEQ ID NO.:48; Nef(91-110) - LKEKGGLEGLIHSQRRQDIL SEQ ID NO.:49;Nef(166-185) - HPVSLHGMDDPEREVLEWRF SEQ ID NO.:50; Nef(182-205) - EWRFDSRLAFHHVAREL-HPEYFKN SEQ ID NO.:51.

HIV CTL-Epitopes:

p24(8-20) - GQMVHQAISPRTL SEQ ID NO.:52; p24(8-27) - GQMVHQAISPRTLNA-WVKVV SEQ ID NO.:53; p24(8-32) - VHQAISPRTLNAWVK-VVEEKAF SEQ ID NO.:54; p24(12-20) - HQAISPRTL SEQ ID NO.:55; p24(13-23) - QAISPRTLNAW SEQ ID NO.:56; p24(15-23) - LSPRTLNAW SEQ ID NO.:57, DTVLEDINL, SEQ ID NO.:58 SLYNVATL SEQ ID NO.:59, LSPRTLNAW SEQ ID NO.:60, YPLTFGWCF SEQ ID NO.:61; p24(16-24) - SPRTLNAWV SEQ ID NO.:62; p24(21-40) - NAWVKVVEEKAFSPE-VIPMF SEQ ID NO.:63; p24(28-47) - EEKAFSPEVIPMFSALS-EGA SEQ ID NO.:64; p24-(35-43) - EVIPMFSAL SEQ ID NO.:65; p24(36-43) - VIPMFSAL SEQ ID NO.:66; p24(47-56) - ATPQDLNMML SEQ ID NO.:67; p24(48-56) - TPQDLNTML SEQ ID NO.:68; p24(51-59) - DLNTMLNTV SEQ ID NO.:69; p24(51-70) - DLNTMLNTVGGHQAA-MQMLK SEQ ID NO.:70; p24(61-69) - GHQAAMQML SEQ ID NO.:71; p24(65-73) - AMQMLKETI SEQ ID NO.:72; p24(83-92) - VHPVHAGPIA SEQ ID NO.:73; p24(101-120) - GSDIAGTTSTLQEQIG-WMTN SEQ ID NO.:74; p24(108-118) - TSTLQEQIGWF SEQ ID NO.:75; p24(121-140) - NPPIPGEIKRWIILGNIK SEQ

ID NO.:76; p24(122-130) - PPIPVGDIY SEQ ID NO.:77; p24(127-135) - GEIYKRWII SEQ ID NO.:78; p24(131-139) - KRWIILGLN SEQ ID NO.:79; p24(131-146) - KRWIILGLNKIVRMYC SEQ ID NO.:80; p24(132-145) - KWILGLNKIVRMY SEQ ID NO.:81; p24(137-145) - GLNKIVRMY SEQ ID NO.:82; P24(166-174) - DRFYKLTRA SEQ ID NO.:83; p24(174-184) - AEQASQEVKNW SEQ ID NO.:84; p24(193-201) - NANPDCKTI SEQ ID NO.:85; p24(195-202) - NPDCKTIL SEQ ID NO.:86; p2p7p1p6(5-13) - SQVTNPANI SEQ ID NO.:87; p2p7p1p6(55-70) - KEGHQMKDCTERQAN-F SEQ ID NO.:88; p2p7p1p6(83-97) - GNFLQSREPEPTAPPF SEQ ID NO.:89; p2p7p1p6(121-130) - YPLTSLRSLF SEQ ID NO.:90; gp160(2-10) - RVKEKYQHL SEQ ID NO.:91; gp160(29-49) - AAEQLWVTVYYGVPV-WKEAT SEQ ID NO.:92, gp160(33-42) - KLWVTVYYGV SEQ ID NO.:93; gp160(37-46) - TVYYGVPVWK SEQ ID NO.:94; gp160(62-80) - DTEVHNVWATHACVP-TDPN SEQ ID NO.:95; gp160(78-86) - DPNPQEVVL SEQ ID NO.:96 gp160(105-117) - HEDIISLWDQSLK SEQ ID NO.:97; gp160(121-129) - KLTPLCVTL SEQ ID NO.:98; gp160(192-200) - KLTSCNTSV SEQ ID NO.:99; gp160(208-217) - VSFEPIPIHY SEQ ID NO.:100; gp160(212-231) - PIPIHYCAPAGFAILKC-NNK SEQ ID NO.:101; gp160(297-322) - TRPNNNTRKRIRIQRG-PGRAFVTIGK SEQ ID NO.:102; Nef(13-20) - WPTVRERM SEQ ID NO.:103; Nef(62-81) - EEEEVGFPVTPQVPLRPMTY SEQ ID NO.:104; Nef(66-97)-Nef(66-97 LAI) - VGFPVTPQVPLRPMTYK-AAVDLSHFLKEKGGL SEQ ID NO.:105 ; Nef(68-76) - FPVTPQVPL SEQ ID NO.:106; Nef(71-81) - RPQVPLRPMTY SEQ ID NO.:107; Nef(72-79) VPLRPMTY SEQ ID NO.:108; Nef(73-82) - QVPLRPMTYK SEQ ID NO.:109; Nef(74-81) - VPLRPMTY SEQ ID NO.:110; Nef(82-101) - KAAVDLSHFLKEKGG-LEGL1 SEQ ID NO.:111; Nef(86-94) - DLSHFLKEK SEQ ID NO.:112.

HIV B cell Epitopes:

P17(11-25) - ELDKWEKIRLRPGGKTLY SEQ ID NO.:113; p17(12-29) - ELDKWEKIRLRPGGKTLY SEQ ID NO.:113; p17(17-22) - IRLPGGKKYMLKHVVWAA SEQ ID NO.:114; p17(30-52) - KLKHIIWASRELERFAVNPGLLE SEQ ID NO.:115; p17(51-65) - LETSEGCRQILGQLQ SEQ ID NO.:116; p17(86-115) - YCVHQRIEIKDTKEALDKIEEEQNKSKKKA SEQ ID NO.:117; p17(86-115) - YSVHQRIDVKDTKEALEKIEEEQNKSKKKA SEQ ID NO.:118; p17(113-122) - KKAQQAAADT SEQ ID NO.:119; p17(112-122) - KKAQQAAADT SEQ ID NO.:119; p17(119-132) - AAGTGNSSQVSQNY SEQ ID NO.:120; p17(121-132) - DTGHSSQVSQNY SEQ ID NO.:121; p24(1-20) - PIVQNIQGQMVHQAISPRTL SEQ ID NO.:122; p24(11-25) - VHQAISPRTLNAWVK SEQ ID NO.:123; p24(45-50) - EGATPQ SEQ ID NO.:124; p24(46-56) - GATPQDLNTML SEQ ID NO.:125 p24(51-61) - DLNTMLNTVG SEQ ID NO.:126; p24(71-81) - ETINEEAAEWD SEQ ID NO.:127; p2p7p1p6(1-5) - LAEAMS SEQ ID NO.:128; p2p7p1p6(19-28) - NFRNQRKIVK SEQ ID NO.:129; p2p7p1p6(45-54) - PRKKGCWKCG SEQ ID NO.:130; p2p7p1p6(66-81) - RQANFLGKIWPSYKGR SEQ ID NO.:131; p2p7p1p6(78-86) - YKGRPGNFL SEQ ID NO.:132; Gag p17(12-19+100-105 IIIB) - ELDRWEKI SEQ ID NO.:133 + ALDKIE SEQ ID NO.:134; P24(121-240 IIIB); p24(dis BRU) - DIRQGP SEQ ID NO.:135 + QGVGGP SEQ ID NO.:136; Pro(1-7) - PQIYLWQ SEQ ID NO.:137; Pro(36-46) - MSLPGRWKPKM SEQ ID NO.:138; Pro(38-45) - LPGRWKPK SEQ ID NO.:139; RT(294-302) - PLTEEAELE SEQ ID NO.:140; RT(294-318) - PLTEAELELAENREILKEPVHGVY SEQ ID NO.:141; RT(295-304) - LTEEAELELA SEQ ID NO.:142; RT(442-450) - VDGAANRET SEQ ID NO.:143; RT(536-549) - VPAHKGIGGNEQVD SEQ ID NO.:144; Vif(34-46) - KARGWFYRHHYESP SEQ ID NO.:145; Vif(176-192) -

KPQKTKGHRGSHTMNGHX SEQ ID NO.:146; Tat(2-15) - EPVDPNLEPWNHPS SEQ ID NO.:147; Tat(2-17); EPVDPRLEWKHPGSQ SEQ ID NO.:148; Tat(73-86) - PTSQPRGDPTGPKE SEQ ID NO.:149; Rev(32-50) - EGTRQARRNRRRWRERQR SEQ ID NO.:150; Rev(70-84) - PVPLQLPPLERLTLD SEQ ID NO.:151 Rev(70-84) - PVPLQLPPLERLTLD SEQ ID NO.:151; Rev(96-105) - GVGSPQILVE SEQ ID NO.:152; gp160(30-51) - ATEKLWVTVYYGVPVWKEATTT SEQ ID NO.:153; gp160(41-50) - GVPVWKEATT SEQ ID NO.:154; gp160(51-70) - LFCASDAKAYDTEVHNVWAT SEQ ID NO.:155; gp160(61-70) - YDTEVHNVWA SEQ ID NO.:156; gp160(73-92) - ACVPTDPNPQEVVLVNVTEN SEQ ID NO.:157; gp160(81-90) - PQEVVLVNVT SEQ ID NO.:158; gp160(81-100) - PQEVVLVNVTENFDMWKNDM SEQ ID NO.:159; gp160(83-92) - EVVLVNVTEN SEQ ID NO.:160; gp160(308-322) - RIHIGPGRAFYTTKN SEQ ID NO.:161; gp160(309-315) - IHIGPGR SEQ ID NO.:162; Env(dis)-gp120(V3 309-318+329-338) - IQRGPGRAFV SEQ ID NO.:163 + AHCNISRAKW SEQ ID NO.:164; Nef(11-20) - VGWPTVRERM SEQ ID NO.:165; Nef(15-24) - TVRERMRRAE SEQ ID NO.:166; Nef(30-43) - VGAASRDLEKHGAI SEQ ID NO.:167; Nef(31-40) - GAASRDLEKH SEQ ID NO.:168; Nef(31-50) - GAASRDLEKHGAITSSNTAA SEQ ID NO.:169; Nef(60-73) - AQEEEEVGFPVTPQ SEQ ID NO.:170; Nef(83-88) - AAVDLS SEQ ID NO.:171; Nef(83-103) - AAVDLSHFLKEKGGLEGLISH SEQ ID NO.:172; Nef(148-157) - VEPDKVEEAN SEQ ID NO.:173; Nef(151-170) - DKVEEANKGENTSLLHPVSL SEQ ID NO.:174; Nef(158-181) - KGENTSLLHPVSLHGMDDPEREVL SEQ ID NO.:175; Nef(171-190) - HGMDDPEREVLEWRFDSRLA SEQ ID NO.:176 --

Delete the paragraph at page 50, lines 9-13 and insert therein the following:

-- Tuberculosis derived epitopes include: MPT64 protein: (24-43) - APKTYCEELKGTDTGQACQI SEQ ID NO.:177, (34-53) - GTDTGQACQIQMSDPAYNIN SEQ ID NO.:178, (44-63) - QMSDPAYNINISLPSYYFDQ SEQ ID NO.:179, (54-73) - ISLPSYYPDQKSLENYIAQT SEQ ID NO.:180, (74-93) RDKFLSAATSSTFREAFYEL SEQ ID NO.:181 and others (Roche et al., *Scand. J. Immunol.* 43, 662-670, 1996). --

Delete the contiguous paragraphs at page 50, line 21 to page 52, line 15 and insert therein the following:

-- Epitopes of melanoma antigens including MAGE-3, MAGE-3(161-169), (Marchard et al., *Int. J. Cancer* 1999, 80:219-230), and MART-1(27-35), (Wang et al., *Clin. Cancer Res* 1999, 5:2756-65), tyrosinase-related protein 2 (TRP2) epitopes: (125-133) VIRQNIHSL SEQ ID NO.:182, (197-205) LLGPGRPYR SEQ ID NO.:183, (180-188) SVYDFFVWL SEQ ID NO.:184, (217-225) VTWHRYHLL SEQ ID NO.:185, (288-296) SLDDYNHLV SEQ ID NO.:186, (367-376) SLHNLVHSFL SEQ ID NO.:187, (455-463) YAIDLPVSV SEQ ID NO.:188, (387-395) ANDPIFVVL SEQ ID NO.:189, (368-376) YMDGTMSQV SEQ ID NO.:190, (485-493) GLFVLLAFL SEQ ID NO.:191, (482-490) ALVGLFVLL SEQ ID NO.:192, and Melan-A(27-35) AAGIGILTV SEQ ID NO.:193 (Sun et al., *Int. J. Cancer*: 87,399-404, 2000); and those identified by Robbins et al., *Curr Opin. Immunol.* 1996, 8:628-636.

Epitopes derived from colorectal carcinoma antigens, such as CEA, 17-1A, B-72.3 and Ep-CAM. (Zhu et al., *Clin. Cancer Res.* 2000, 6:24-33).

Oncoprotein antigens such as p53 (Ropke et al., *PNAS*, 1996, 93:14704-07).

Epitopes of breast cancer antigens including HER2/neu (p185) (Esserman et al., *Cancer Immunol Immunother* 1999, 47:337-42); IISAVVGIL SEQ ID NO.:194, KIFGSLAF SEQ ID NO.:195, PDTRPAPGSTAPPAHGVTSA SEQ ID NO.:196; B cell epitope KASIFLK SEQ ID NO.:232 (Cao et al., *Breast Cancer Res Treat* 1999 Feb; 53(3):279-90; and ovarian cancer related B cell epitopes (Chinni et al., *Cancer Immunol Immunother* 1998 Mar; 46(1):48-54

Other tumor antigens including T cell epitopes include BAGE, CAGE-1, CAGE-R, MUM-1, CDK4 (Robbins et al., supra); AARAVFLAL SEQ ID NO.:197, YRPRPRRY SEQ ID NO.:198, VLPDVFIRC SEQ ID NO.:199, AYGLDFYIL SEQ ID NO.:200, SYLDSGIHF SEQ ID NO.:201, EEKLIVVLF SEQ ID NO.:202, ACDPHSGHFV SEQ ID NO.:203, IISAVVGIL SEQ ID NO.:204, KIFGSLAFL SEQ ID NO.:205, YMLDLQPETT SEQ ID NO.:206, PDTRPAPGSTAPPAHGVTSA SEQ ID NO.:207

Viral antigens associated with infections and cancer:

Hepatitis B antigens: U.S. Patent No. 5,932,224, e.g., HBpol(61-69) - GLYSSYVPV SEQ ID NO.:208, HPpol(161-169) - GLYSSTVPV SEQ ID NO.:209, HBpol(455-463), - GLSRYVARL SEQ ID NO.:210, HBpol(773-382) - ILRGYSFVRV SEQ ID NO.:211, HBpol(803-811)- SLYADSPSV SEQ ID NO.:212, HBpol(816-824) - FLLSLGIHL SEQ ID NO.:213; Vitiello et al., *J. Clin. Invest.* 1995 95:341-345; *J. Immunol* 2000, Oct 15;165(8):4748-55; e.g., VLQAGFFLL SEQ ID NO.:214, FLLTRILTI SEQ ID NO.:215, FLGGTPVCL SEQ ID NO.:216, LLCLIFLLV SEQ ID NO.:217, LLDYQGMLP SEQ ID NO.:218, WLSLLVPFV SEQ ID NO.:219, GLSPTVWLS SEQ ID NO.:220; HBsAg peptides S(179-186; FVQWFVGL SEQ ID NO.:221) and S2(208-216; ILSPFLPLL SEQ ID NO.:222), residues 122-137 (Dreesman et al., *Adv. Exp. Med. Biol.* 1985; 185:129-37).

Hepatitis C virus (HepC), *J. Hepatol* 2001 Feb; 34(2):321-9) E2(614-622);

immunodominant HLA-A24 epitope AYSQQTRGL SEQ ID NO.:223; antigen NS5 (P17, residues 2423-2434), (Uno-Furuta et al., *Vaccine* 2001 Feb 28; 19(15-16:2190-6).

Epstein-Barr virus (EBV) associated Hodgkin's lymphomas and nasopharyngeal carcinoma antigens: LMP1, LMP2, and EBNA-1, EBNA-3 (Orentas et al., *Clin Immunol.* 2001 Feb; 98(2):220-8 and *Curr. Opin. Immunol.* 1996, 8:651-657) and EBNA3B epitopes (399-408), (416-424), and latent cycle antigens including epitopes RRIYDLIEL SEQ ID NO.:224, RRARSLSAERY SEQ ID NO.:225, RRRWRRLTV SEQ ID NO.:226, and FRKAQIQGL SEQ ID NO.:227 and CLG peptide (Marastoni et al., *J. Med. Chem.* 2001 Jul 5:44(14):2370-3); *J. Immunol.* 1995 154:5934-5943, E7 epitopes YLDLQPETT SEQ ID NO.:228, LLMGTLGIV SEQ ID NO.:229, . --

Delete the paragraph at page 53, lines 1-6 and insert therein the following:

-- **Preparation of the peptide**. p7g is a 9 amino acid peptide (m.w. = 1064) and recognized CTL epitope (AMQMLKETI SEQ ID NO.:1) derived from the p24 region of the HIV-1 Gag protein (Doe et al., *AIDS.* 1996 Jun;10(7):793-4.). The p7g peptide was synthetically prepared using a commercially available peptide synthesizer and purified by reverse phase HPLC. The purified peptide was reconstituted in distilled water to a final concentration of 1 mg/ml and stored at -80°C. --

Delete the paragraph at page 53, line 12 to page 54, line 10 and insert therein the following:

-- In this approach, one mg each of hyaluronic acid and N-hydroxysuccinimide was dissolved in 2 ml PBS (1:10) solution at room temperature. After 5.1 mg of 1-ethyl-3-(3-dimethylaminopropyl)-carbodiimide hydrochloride (EDC) was added, the mixture was

adjusted to pH 5.0 with 0.1 N HCl solution and stirred at room temperature for 2 hours. To this solution, 1 mg of HIV peptide p7g, NH_2-AMQMLKETI SEQ ID NO.:1-COOH, dissolved in 1 ml of distilled water was added and the mixture placed on a rocker and rocked gently at room temperature for 3 hours. The resulting mixture was dialyzed against 4 liters distilled water 3 times with MWCO = 6000 – 8000 to remove free peptide and EDC. The distilled water was changed every 2 hours. The reaction was monitored with gel-filtration HPLC and C18 reverse phase HPLC. The resulting p7g-HA conjugate solution was lyophilized and stored at -80°C. The conjugate could be further purified by gel-filtration HPLC (Phenomenex Biosep S series). --

Delete the paragraph at page 59, line 5 to page 60, line 2 and insert therein the following:

-- **ELISpot ASSAY.** The ELISpot assay was performed as described by Miyahira et al. (*J. Immunol. Method. 181*:45-54 (1995)) and Murali-Krishna et al. (*Immunity 8*:177-187 (1998)), modified to detect HIV-1 p7g-specific $CD8^+$ T cells. Splenocytes from immunized, vaccinia challenged mice were harvested as described above, and cultured in vitro with or without p24 peptide for 24 hours (sequence derived from HIV-1 Gag protein). Briefly, ninety-six-well filtration plates (Millipore, Bedford, Mass.) were coated overnight at 4°C with 50 µl (10 µg/ml) of anti-mouse IFN-γ (R46A2; Pharmingen) in sterile PBS. The plates were blocked for 2 h at 37°C with sterile RPMI 1640 containing 10% fetal calf serum and 1% bovine serum albumin and were washed three times with sterile PBS. Various dilutions of splenocytes in 200 µl of complete medium with or without MHC class I-restricted p24 peptide (aa AMQMLKETI SEQ ID NO.:1) were placed in each well and incubated at 37°C for 24 h. Plates were washed with PBS containing 0.025% Tween-20 and were overlaid with 50 µl (5

μg/ml) of biotinylated anti-mouse IFN-γ (XMG1.2; Pharmingen). The plates were washed six times with PBS containing 0.025% Tween-20 and were treated with 1.25 μg of avidin-conjugated alkaline phosphatase (Sigma) per ml for 2 h at room temperature. After a final wash with PBS, IFN-γ spot-forming cells were detected by the addition of BCIP-nitroblue tetrazolium solution (Sigma) and were counted with a stereomicroscope. The reported values reflect the mean of duplicate samples recorded in spot forming units (SFU) per million cells. --

Delete the paragraph at page 61, lines 16-24 and insert therein the following:

-- Peptide T, which is derived from the V2 region of HIV-1, inhibits replication of R5 and dual-tropic (R5/X4) HIV-1 strains in monocyte-derived macrophages (MDMs), microglia, and primary CD4(+)T cells. Picone, D. et al., "Peptide T revisited: conformational mimicry of epitopes of anti-HIV proteins", *J Pept Sci* 7:197-207 (2001). Peptide T (ASTTTNYT SEQ ID NO.:230) corresponds to residues 185-192 of gp120, the coat protein of HIV and is endowed with several biological properties *in vitro*, notably inhibition of the binding of both isolated gp120 and HIV-1 to the CD4 receptor, and chemotactic activity. The effect on the humoral response to peptide T of conjugation to HA was examined. --